

AMENDMENTS

IN THE CLAIMS:

1. (Canceled)

2. (Canceled)

3. (Canceled)

4. ( Canceled)

5. (Previously Presented): A liquid crystal display device comprising: a first substrate made of a transparent material, provided with signal electrodes or display electrodes formed on one face thereof; a second substrate made of a transparent material, provided with opposed electrodes formed thereon; and liquid crystal sealed in-between the first substrate and the second substrate, oppositely disposed to each other with a predetermined gap interposed therebetween such that each of the signal electrodes or the display electrodes faces each of the opposed electrodes so as to form a pixel, characterized in that

a polarizing film without reflection characteristics is disposed on the visible side of the first substrate,

a white diffusing film is disposed adjacently to the second substrate, on a side of the second substrate, opposite the liquid crystal, no polarizer being provided between the second substrate and the white diffusing film,

a polarizing film is disposed on a side of the white diffusing film, opposite the second substrate, and

a reflector is disposed on a side of the polarizing film, opposite the white diffusing film;  
said white diffusing film having the characteristics of allowing circularly polarized light to pass therethrough substantially as the circularly polarized light, and having a substantially equal transmittance for light components at respective wavelengths in the wavelength range of visible light.

6. (Original): A liquid crystal display device according to claim 5, wherein the reflector is a transflective reflector, and has the characteristics of having a substantially equal transmittance for light components at respective wavelengths in the wavelength range of visible light.

7. (Original): A liquid crystal display device according to claim 5, wherein another white diffusing film is disposed between the first substrate and the polarizing film.

8. (Canceled)

9. (Canceled)

10. (Previously Presented): A liquid crystal display device comprising: a first substrate made of a transparent material, provided with signal electrodes or display electrodes formed on one surface thereof; a second substrate made of a transparent material, provided with opposed electrodes formed thereon; and liquid crystal sealed in-between the first substrate and the second substrate, oppositely disposed to each other with a predetermined gap interposed therebetween such that each of the signal electrodes or the display electrodes faces each of the opposed electrodes so as to form a pixel, characterized in that

a white diffusing film is disposed adjacently to the second substrate on a side of the second substrate, opposite the liquid crystal, no polarizer being provided between the second substrate and the white diffusing film, and

a reflector is disposed on a side of the white diffusing film, opposite the second substrate; said white diffusing film having the characteristics of allowing circularly polarized light to pass therethrough substantially as the circularly polarized light, and having a substantially equal transmittance for light components at respective wavelengths in the wavelength range of visible light, and said reflector being made up of a reflection-type polarizing film, wherein one of the optic axes thereof is the transmission axis and the other, substantially orthogonal to the transmission axis, is the reflection axis.

11. (Currently Amended): A liquid crystal display device comprising: a first substrate made of a transparent material, provided with signal electrodes or display electrodes formed on one face thereof; a second substrate made of a transparent material, provided with opposed electrodes formed thereon; and liquid crystal sealed in-between the first substrate and the second substrate, oppositely disposed to each other with a predetermined gap interposed therebetween such that each of the signal electrodes or the display electrodes faces each of the opposed electrodes so as to form a pixel, characterized in that

a white diffusing film is disposed on the visible side of the first substrate so as to be in direct contact with the first substrate,

a polarizing film without reflection characteristics is disposed on the visible side of the white diffusing film, and

a reflector is provided on a side of the second substrate, opposite the liquid crystal;

said white diffusing film having the characteristics of allowing circularly polarized light to pass therethrough substantially as the circularly polarized light, and having a substantially equal transmittance for light components at respective wavelengths in the wavelength range of visible light, and said reflector being made up of a reflection-type polarizing film, wherein one of the optic axes thereof is the transmission axis and the other, substantially orthogonal to the transmission axis, is the reflection axis.

12. (Original): A liquid crystal display device according to claim 5, wherein the reflector is made up of a reflection-type polarizing film, wherein one of the optic axes thereof is the transmission axis and the other, substantially orthogonal to the transmission axis, is the reflection axis.

13. (Currently Amended): A liquid crystal display device comprising: a first substrate made of a transparent material, provided with signal electrodes or display electrodes formed on one face thereof; a second substrate made of a transparent material, provided with opposed electrodes formed thereon; and liquid crystal sealed in-between the first substrate and the second substrate, oppositely disposed to each other with a predetermined gap interposed therebetween such that each of the signal electrodes or the display electrodes faces each of the opposed electrodes so as to form a pixel, characterized in that

a polarizing film without reflection characteristics is disposed on the visible side of the first substrate,

a polarizing film without reflection characteristics is disposed on a side of the second substrate, opposite the liquid crystal,

a white diffusing film is disposed on a side of the polarizing film, opposite the second substrate, so as to be in direct contact with the polarizing film, and

a reflector is disposed on a side of the white diffusing film, opposite the polarizing film;

said white diffusing film having the characteristics of allowing circularly polarized light to pass therethrough substantially as the circularly polarized light, and having a substantially equal transmittance for light components at respective wavelengths in the wavelength range of visible light, and said reflector being made up of a reflection-type polarizing film, wherein one of the optic axes thereof is the transmission axis and the other, substantially orthogonal to the transmission axis, is the reflection axis.

14. (Previously Presented): A liquid crystal display device according to claim 10, wherein the reflector is made up of a laminate of reflection-type polarizing films wherein one of the optic axes thereof is the transmission axis and the other, substantially orthogonal to the transmission axis, is the reflection axis.

15. (Currently Amended): A liquid crystal display device comprising: a first substrate made of a transparent material, provided with signal electrodes or display electrodes, formed on one face thereof; a second substrate made of a transparent material, provided with opposed electrodes formed thereon; and liquid crystal sealed in-between the first substrate and the second substrate, oppositely disposed to each other with a predetermined gap interposed therebetween such that each of the signal electrodes or the display electrodes faces each of the opposed electrodes so as to form a pixel, characterized in that

a polarizing film without reflection characteristics is disposed on the visible side of the first substrate,

a polarizing film without reflection characteristics is disposed on a side of the second substrate, opposite the liquid crystal,

a white diffusing film is disposed on a side of the polarizing film, opposite the second substrate, so as to be in direct contact with the polarizing film, and

a reflector is disposed on a side of the white diffusing film, opposite the polarizing film;

said white diffusing film having the characteristics of allowing circularly polarized light to pass therethrough substantially as the circularly polarized light, and having a substantially equal transmittance for light components at respective wavelengths in the wavelength range of visible light, and said reflector being made up of a holographic film in which regions having different refractive indices are spatially distributed.

16. (Canceled)

17. (Previously Presented): A liquid crystal display device according to claim 5, wherein a color printed layer is disposed adjacently to the white diffusing film between the second substrate and the reflector, and said color printed layer has the characteristics of allowing circularly polarized light to pass therethrough substantially as the circularly polarized light and has a transmittance having wavelength dependency.

18. (Canceled)

19. (Canceled)

20. (Previously Presented): A liquid crystal display device according to claim 17, wherein the color printed layer is composed of a plurality of portions, each having a transmittance having a wavelength characteristics in the wavelength range of visible light.

21. (Previously Presented): A liquid crystal display device according to claim 5, wherein the white diffusing film has a transmittance of 70% or more.

22. (Canceled)

23. (Canceled)

24. (Original): A liquid crystal display device according to claim 5, wherein the white diffusing film is made of a complex substance comprised of resin beads and a synthetic resin having a refractive index differing from that of the synthetic resin beads, and has a light-scattering characteristics due to the difference in refractive indices therebetween.

25. (Canceled)

26. (Original): A liquid crystal display device according to claim 17, wherein the white diffusing film is made of a complex substance comprised of resin beads and a synthetic resin having a refractive index differing from that of the resin beads, and has a light-scattering characteristics due to the difference in refractive indices therebetween.

27. (Canceled)

28. (Previously Presented): A liquid crystal display device according to claim 20, wherein the white diffusing film is made of a complex substance comprised of resin beads and a synthetic resin having a refractive index differing from that of the resin beads, and has a light-scattering characteristics due to the difference in refractive indices therebetween.

29. (Previously Presented): A liquid crystal display device according to claim 5, wherein the white diffusing film is a white diffusing film with a plurality of projections and depressions formed on the surface thereof, causing a portion of light incident on the surface to undergo diffuse reflection and remaining portions of the light to be transmitted therethrough, said projections and depressions formed on the surface being in a shape approximating to a quadratic curve.

30. (Currently Amended): A liquid crystal display device comprising: a first substrate made of a transparent material, provided with signal electrodes or display electrodes formed on one face thereof; a second substrate made of a transparent material, provided with opposed electrodes formed thereon; and liquid crystal sealed in-between the first substrate and the second substrate, oppositely disposed to each other with a predetermined gap interposed therebetween such that each of the signal electrodes or the display electrodes faces each of the opposed electrodes so as to form a pixel, characterized in that

a polarizing film without reflection characteristics is disposed on the visible side of the first substrate,

a polarizing film without reflection characteristics is disposed on a side of the second substrate, opposite the liquid crystal,

a white diffusing film is disposed on a side of the polarizing film, opposite the second substrate, so as to be in direct contact with the polarizing film, and

a reflector is disposed on a side of the white diffusing film, opposite the polarizing film;

said white diffusing film having the characteristics of allowing circularly polarized light to pass therethrough substantially as the circularly polarized light, and having a substantially equal



transmittance for light components at respective wavelengths in the wavelength range of visible light, provided with a plurality of projections and depressions formed on the surface thereof, causing a portion of light incident on the surface to undergo diffuse reflection and remaining portions of the light to be transmitted therethrough, said projections and depressions formed on the surface being in a shape approximating to a quadratic curve,

and said reflector being a transfective reflector having the characteristics of having a substantially equal transmittance for light components at respective wavelengths in the wavelength range of visible light.

31. (Original): A liquid crystal display device according to claim 17, wherein the white diffusing film is a white diffusing film with a plurality of projections and depressions formed on the surface thereof, causing a portion of light incident on the surface to undergo diffuse reflection and remaining portions of the light to be transmitted therethrough, said projections and depressions formed on the surface being in a shape approximating to a quadratic curve.

32. (Previously Presented): A liquid crystal display device comprising: a first substrate made of a transparent material, provided with signal electrodes or display electrodes formed on one face thereof; a second substrate made of a transparent material, provided with opposed electrodes formed thereon; and liquid crystal sealed in-between the first substrate and the second substrate, oppositely disposed to each other with a predetermined gap interposed therebetween such that each of the signal electrodes or the display electrodes faces each of the opposed electrodes so as to form a pixel, characterized in that

a white diffusing film is disposed on a side of the second substrate, opposite the liquid crystal, and

a reflector is disposed on a side of the white diffusing film, opposite the second substrate;

said white diffusing film having the characteristics of allowing circularly polarized light to pass therethrough substantially as the circularly polarized light, and having a substantially equal transmittance for light components at respective wavelengths in the wavelength range of visible light, provided regions corresponding to respective pixels, having diffusibility differing from that for regions thereof, around the respective pixels.

33. (Previously Presented): A liquid crystal display device comprising: a first substrate made of a transparent material, provided with signal electrodes or display electrodes formed on one face thereof; a second substrate made of a transparent material, provided with opposed electrodes formed thereon; and liquid crystal sealed in-between the first substrate and the second substrate, oppositely disposed to each other with a predetermined gap interposed therebetween such that each of the signal electrodes or the display electrodes faces each of the opposed electrodes so as to form a pixel, characterized in that

a white diffusing film is disposed on a side of the second substrate, opposite the liquid crystal, and

a reflector is disposed on a side of the white diffusing film, opposite the second substrate;

said white diffusing film having the characteristics of allowing circularly polarized light to pass therethrough substantially as the circularly polarized light, and having a substantially equal transmittance for light components at respective wavelengths in the wavelength range of visible

light, provided regions corresponding to respective pixels, having a transmittance differing from that for regions thereof, around the respective pixels.

34. (Previously Presented): A liquid crystal display device comprising: a first substrate made of a transparent material, provided with signal electrodes or display electrodes formed on one face thereof; a second substrate made of a transparent material, provided with opposed electrodes formed thereon; and liquid crystal sealed in-between the first substrate and the second substrate, oppositely disposed to each other with a predetermined gap interposed therebetween such that each of the signal electrodes or the display electrodes faces each of the opposed electrodes so as to form a pixel, characterized in that

a white diffusing film is disposed on a side of the second substrate, opposite the liquid crystal,, no polarizer being provided between the second substrate and the white diffusing film, and a reflector is disposed on a side of the white diffusing film, opposite the second substrate, said white diffusing film allowing circularly polarized light to pass therethrough substantially as the circularly polarized light, and said pixels being provided with color filters.

35. (Canceled)

36. (Previously Presented): A liquid crystal display device according to claim 6, wherein an auxiliary light source is provided on a side of the transflective reflector, opposite the visible side.

37. (Canceled)

38. (Previously Presented): A liquid crystal display device according to claim 10, wherein an auxiliary light source is provided on a side of the reflection-type polarizing film, opposite the visible side.

39. (Previously Presented): A liquid crystal display device according to claim 11, wherein an auxiliary light source is provided on a side of the reflection-type polarizing film, opposite the visible side.

40. (Previously Presented): A liquid crystal display device according to claim 5, wherein the white diffusing film is made up of a diffusing-type liquid crystal layer for diffusing light.

41. (Canceled)

42. (Original): A liquid crystal display device according to claim 17, wherein the white diffusing film is made up of a diffusing-type liquid crystal layer for diffusing light.

43. (Original): A liquid crystal display device according to claim 34, wherein the white diffusing film is made up of a diffusing-type liquid crystal layer for diffusing light.

44. (Previously Presented): A liquid crystal display device according to claim 6, wherein the white diffusing film comprises two transparent substrates, provided with an electrode formed on the inner faces thereof, facing each other, respectively, and a mixed liquid crystal layer comprised of transparent solids and liquid crystal, that is sandwiched between the two transparent substrates, a degree of light scattering caused by said mixed liquid crystal layer being rendered variable according to voltage by applying a voltage between the respective electrodes.

45. (Canceled)

46. (Original): A liquid crystal display device according to claim 17, wherein the white diffusing film comprises two transparent substrates, provided with an electrode formed on the inner faces thereof, facing each other, respectively, and a mixed liquid crystal layer comprised of transparent solids and liquid crystal, that is sandwiched between the two transparent substrates, a

degree of light scattering caused by said mixed liquid crystal layer being rendered variable according to voltage by applying a voltage between the respective electrodes.

47. (Original): A liquid crystal display device according to claim 34, wherein the white diffusing film comprises two transparent substrates, provided with an electrode formed on the inner faces thereof, facing each other, respectively, and a mixed liquid crystal layer comprised of transparent solids and liquid crystal, that is sandwiched between the two transparent substrates, a degree of light scattering caused by said mixed liquid crystal layer being rendered variable according to voltage by applying a voltage between the respective electrodes.

48. (Previously Presented): A liquid crystal display device according to claim 10, wherein a color printed layer is disposed adjacently to the white diffusing film between the second substrate and the reflector, and

said color printed layer has the characteristics of allowing circularly polarized light to pass therethrough substantially as the circularly polarized light and has a transmittance having wavelength dependency.

49. (Previously Presented): A liquid crystal display device according to claim 13, wherein a color printed layer is disposed adjacently to the white diffusing film between the second substrate and the reflector, and

said color printed layer has the characteristics of allowing circularly polarized light to pass therethrough substantially as the circularly polarized light and has a transmittance having wavelength dependency.

50. (Previously Presented): A liquid crystal display device according to claim 17, wherein a light absorption layer is disposed on a side of the reflector, opposite the white diffusing film..

51. (Previously Presented): A liquid crystal display device according to claim 48, wherein a light absorption layer is disposed on a side of the reflector, opposite the white diffusing film..

52. (Previously Presented): A liquid crystal display device according to claim 49, wherein a light absorption layer is disposed on a side of the reflector, opposite the white diffusing film..

53. (Previously Presented): A liquid crystal display device according to claim 12, wherein an auxiliary light source is provided on a side of the reflection-type polarizing film, opposite the visible side.

54. (Previously Presented): A liquid crystal display device according to claim 13, wherein an auxiliary light source is provided on a side of the reflection-type polarizing film, opposite the visible side.

55. (Presently Presented): A liquid crystal display device according to claim 5, wherein the white diffusing film is in direct contact with the second substrate or the white diffusing film and the second substrate have only an air layer between them.